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DUKE POWER

June 7, 1990

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Catawba Nuclear Station, Units 1 and 2
Docket Nos. 50-413 and 50-414
NRC Inspection Report Nos. 50-413 and 50-414/90-09
Reply to a Notice of Violation

Gentlemen:

Enclosed is the response to the Notice of Violation issued May 10, 1990 by Alan R. Herdt concerning inadequate procedures and failure to follow procedures.

Very truly yours,

Hal B. Tucker

WRC/161/lcs

Attachment

xc: Mr. Stewart D. Ebnetter
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta St., NW, Suite 2900
Atlanta, Georgia 30323

Mr. W. T. Orders
NRC Resident Inspector
Catawba Nuclear Station

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DUKE POWER COMPANY
REPLY TO A NOTICE OF VIOLATION
413/90-09-01

Technical Specification 6.8.1 requires that written procedures shall be established, implemented, and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Implicit in this is the stipulation that the procedure be adequate for the task being performed.

Station Directive 3.1.14, Operability Determination, requires that if responsible personnel believe a component operable but have concerns relative to its continued operation, necessary actions shall be taken expeditiously to resolve the concerns and confirm operability. These actions include the performance of an engineering evaluation.

Contrary to the above:

- A) On March 23, 1990, an operator failed to follow procedural requirements while performing OP/O/A/6450/11, Control Room Area Ventilation/Chilled Water System, Enclosure 4.8, Shifting Power Supplies on Control Room Area Chiller's, item 2.2.4, in that he lifted the power lead to the running chiller which placed the Unit in T/S 3.0.3.
- B) Test procedure IP/1/A/3231/01, Incore Thermocouple and RTD Cross Calibration, was inadequate in that on April 9, 1990, performance of the test resulted in the licensee rendering all four channels of ESF instrumentation required for Mode 3 operation inoperable.
- C) Surveillance procedure PT/1/A/4200/09, Engineering Safeguards Features Actuation Periodic Test, was inadequate in that it failed to provide the necessary steps to ensure that the resulting injection flow through INI-9, Centrifugal Charging Pump Cold Leg Injection Isolation Valve, did not result in excessive temperature changes to the pressurizer. As a result of the procedure inadequacy, on March 25 and 26, 1990, the pressurizer was subjected to two cooldown transients which exceeded 200 degrees F in less than 1 hour and two subsequent heatups which exceeded 100 degrees F in less than 1 hour.
- D) On March 25, 1990, following a rapid cooldown and heatup of the pressurizer, which exceeded T/S allowable limits, the Shift Supervisor failed to take action to initiate an engineering evaluation to determine the effects on the structural integrity and acceptability for continued operation of the pressurizer. This

contributed to a decision to continue with testing in progress which resulted in a second similar pressurizer transient on March 26, 1990, which again exceeded the cooldown and heatup limits.

RESPONSE:

1. Admission or Denial of Violation

Duke Power admits the violation.

2. Reasons for Violation if Admitted

Item A. This incident was attributed to Inappropriate Action for entering the incorrect terminal box due to a lack of attention to detail. Also, this event was attributed to a Deficient Procedure in that an independent verification was not required to insure the proper equipment was being affected.

Item B. The procedure was inadequate in that it did not provide sufficient guidance to the test coordinator to mitigate the consequences of a test equipment failure, or to provide adequate cautions concerning inadvertent actuations of the P-12 interlock. This deficiency led up to the event where a test equipment failure caused a P-12 actuation while the test was in progress.

At the time the procedure was originally prepared in 1983, using Westinghouse Start-up documents as a reference, it was written such that all four channels of T-AVG instrumentation were tested simultaneously. The station review committee concurred with this method, recognizing that such a test configuration did not meet the minimum channels operable requirement, but did allow continued operation under the ACTION statement for the instrumentation. The procedure was NOT inadequate in that it allowed all four channels to be removed from service concurrently.

This procedure did NOT cause the licensee to unknowingly enter T/S 3.0.3. The procedure was written such that the ACTION statement for T/S Table 3.3-3, Item 18c would be entered during the brief (15-minute) test duration.

- Item C. This incident was attributed to a Management
& Deficiency; a revision of the test procedure was
Item D. not prepared to address the potential impact of
the injection on pressurizer temperature. A
second injection occurred as a result of an
Inappropriate Action in not performing an
appropriate engineering evaluation after the first
injection.

3. Corrective Actions Taken to Avoid Further Violations
and the Results Achieved

- Item A. VC/YC Train A was returned to service with supply
power from 2ETA.

Work Request 463850PS inspected terminal box
1TBOX0346, and insured it was operational.

Work Request 463840PS replaced the 2ETB-17 breaker
with a spare.

VC/YC Trains A and B were swapped to their Unit 1
supply power to support ESF testing.

Additional tags were placed on terminal boxes
1TBOX0345 and 1TBOX0346 front panels to insure the
related equipment and train can be identified.

The procedure for manipulation of VC/YC chiller
power supplies has been revised to require an
independent verification that the correct terminal
box is being entered.

Testimonial presentations to each operations shift
were made by one of the involved individuals.
These talks covered the circumstances of the
event, the corrective actions taken, and the
lessons learned.

- Item B. The test procedure and the associated incident
were reviewed to determine the root cause of the
incident. It was determined that a procedure
revision allowing testing of only one temperature
channel at a time would have prevented the
inadvertent actuation of the P-12 interlock when
the test equipment problem occurred.

It was also recognized that a revised test method
which would require verification of test inputs as
they are injected would have prevented this
incident.

- Item C. CROs closed 1NI-9A to terminate injection flow.
&
Item D. PIR 1-C90-0099 was initiated to request Design Engineering evaluation of the recorded pressurizer temperature data.

Westinghouse initiated an evaluation of the data and concluded that the design life and the pressurizer structural integrity were not compromised. Design Engineering concurred that continued operation was acceptable.

The ESF test procedure was revised to remove power from NI-9A or NI-10B to preclude their opening during testing of their respective train. The valves are now tested outside of the main LOCA or Blackout test to preclude further injections.

Operations shift personnel reviewed this event with emphasis on:

- The need to request appropriate support for evaluation of plant transients;
- The need to keep Performance Test Coordinators informed of abnormalities;
- Limitations on the cooldown of pressurized vessels with respect to thermal shock and stress minimization.

4. Corrective Actions to be Taken to Avoid Further Violations

- Item A. The locks on terminal boxes 1TBOX0345 and 1TBOX0346 will be used such that different keys will be required for each box to prevent inadvertent entry into the incorrect box.
(Operations)

Operating procedures will be reviewed for similar activities where electrical leads are being disconnected or swapped. Procedures will be revised to include independent verifications to ensure the proper equipment is being entered. This evaluation will identify additional safety measures that could be applied to prevent the cause and consequences of pulling an energized electrical lead when all administrative controls fail.

(Operations)

- Item B. Test procedures IP/1/A/3231/01 and IP/2/A/3231/01 will be revised to:
- a. Take only one channel of ESF instrumentation out of service at a time.
 - b. Provide explicit cautions associated with the P-12 interlock. The procedure already contains cautions associated with the Lo-Tavg interlock with feedwater isolation. Cautions about the P-12 interlock would increase the awareness of the test coordinators and the control room operators.
 - c. Provide a method to verify test inputs as they are injected. The procedure will specify that the temperature indication must be observed on control board meters as each test signal is injected to ensure that the test equipment is functioning properly. The procedure will include a method to remove RTD's from service one channel at a time.
 - d. Provide information to the Operators regarding operability of affected instrumentation in a readily understood format. While the existing procedure did specify the appropriate T/S associated with the P-12 interlock, it could have been better clarified. In the revision to be made, a description of the T/S will be added and the format will be changed to specify affected T/S's individually, rather than in a list.
(MES)

- Item C. Westinghouse will complete and send to Duke Power
& more detailed engineering evaluation including
Item D. fatigue and fracture analyses to determine the
specific effect of this type of pressurizer
cooldown on the design life of the plant.
(Design/Westinghouse)

The revised ESF test procedures will be reviewed with Operations personnel in a tailgate session prior to using this procedure in the upcoming Unit 2 outage.
(Performance)

Performance personnel with the assistance of Operations will incorporate this event into the 2 year review cycle of test procedures. The special

measures/actions needed to control plant conditions, including test termination criteria and actions will be incorporated at that time. (Performance)

Other procedures for tests involving the potential for water injection to the primary coolant system in modes 1-4 or where there is the potential for a hot pressurizer will be reviewed to ensure adequate precautions and guidance are given to control plant conditions and modes. (Performance)

5. Date of Full Compliance

Duke Power will be in full compliance by 10/31/90 except for the corrective action of Performance personnel with the assistance of Operations incorporating this event into the 2 year review cycle of test procedures. The special measures/actions needed to control plant conditions, including test termination criteria and actions will be incorporated by 4/29/92.

The procedures revisions will be completed prior to the next performance of the Incore Thermocouple and RTD Cross Calibration Test, which is scheduled for August 4, 1990 during the Unit 2 refueling outage.